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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,954	05/24/2002	Eric Samain	065691-0267	6242
22428	7590	10/01/2004	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			PROUTY, REBECCA E	
			ART UNIT	PAPER NUMBER
			1652	

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,954

Applicant(s)

SAMAIN ET AL.

Examiner

Rebecca E. Prouty

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-46 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Art Unit: 1652

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-39, drawn to methods of producing an oligosaccharide from an exogenous precursor using a recombinant microorganism including a gene for at least one glycosyltransferase.

Group II, claim(s) 40-45, drawn to oligosaccharides and compositions thereof.

Group III, claim(s) 46, drawn to use of an oligosaccharide for the growth or defense of plants.

The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the only shared technical feature linking groups I-III is that they all relate to oligosaccharides made by a process of production from an exogenous precursor using a recombinant microorganism including a gene for at least one glycosyltransferase. However, this does not constitute a special technical feature as defined by PCT

Art Unit: 1652

Rule 13.2 as it is not a contribution over the art. Prieto et al. (WO 98/44145, Reference A4 of applicants IDS) teach oligosaccharide production by adding an acceptor moiety and host cells transformed with a polynucleotide that encodes a catalytic amount of a glycosyltransferase to purified sugar-nucleotides to form a mixture and incubating the mixture under conditions and for a period of time sufficient to allow for oligosaccharide formation. Prieto et al. further teach the oligosaccharides produced and uses thereof.

This application contains claims directed to more than one species of the generic invention. The generic invention comprises distinct species of oligosaccharides produced from distinct species of exogenous precursors using distinct species of recombinant cells including one or more genes to one or more enzymes. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The claims include at least the following species of oligosaccharides:

β -D-Gal-[1 \rightarrow 4]- β -D-GlcNac-1 \rightarrow O-allyl .

β -D-GlcNac-[1 \rightarrow 3] β -D-Gal-[1 \rightarrow 4]-D-Glc

Art Unit: 1652

lacto-N-neo-tetraose and polylactosamine

sialylated derivatives of lacto-N-neo-tetraose and
polylactosamine having an α -2,3-linked sialic acid residue

sialylated derivatives of lacto-N-neo-tetraose and
polylactosamine having an α -2,6-linked sialic acid residue

fucosylated derivatives of lacto-N-neo-tetraose and
polylactosamine having α -1,3-linked fucose residue(s)

fucosylated derivatives of lacto-N-neo-tetraose and
polylactosamine having α -1,2-linked fucose residue(s)

sialylated and fucosylated derivatives of lacto-N-neo-
tetraose and polylactosamine having an α -2,3-linked sialic acid
residue and α -1,3-linked fucose residue(s)

sialylated and fucosylated derivatives of lacto-N-neo-
tetraose and polylactosamine having an α -2,6-linked sialic acid
residue and α -1,3-linked fucose residue(s)

sialylated and fucosylated derivatives of lacto-N-neo-
tetraose and polylactosamine having an α -2,3-linked sialic acid
residue and α -1,2-linked fucose residue(s)

Art Unit: 1652

sialylated and fucosylated derivatives of lacto-N-neo-tetraose and polylactosamine having an α -2,6-linked sialic acid residue and α -1,2-linked fucose residue(s)

3-sialyllactose

6-sialyllactose

3-fucosyllactose

2-fucosyllactose

α -L-Fuc- [1 \rightarrow 2] β -D-Gal- [1 \rightarrow 4] -D-Glc

β -D-GlcNac- [1 \rightarrow 3] β -D-Gal-1 \rightarrow O-allyl and

analogs of lacto-N-neo-tetraose and polylactosamine in which the glucose residue is replaced with an allyl group

The claims include at least the following species of exogenous precursors:

β -D-GlcNac-1 \rightarrow O-allyl

lactose

lactulose

3-O- β -D-galactopyranosyl-D-arabinose

allyl- β -D-galactopyranoside

melibiose

raffinose

allyl- α -D-galactopyranoside

Art Unit: 1652

sucrose and

sialic acid

The claims include at least the following species of genes in the recombinant cells:

β -1,3-N-acetylglucosaminyltransferase

β -1,3-galactosyltransferase

α -1,3-N-acetylglucosaminyltransferase

β -1,3-glucuronosyltransferase

β -1,3-N-acetylgalactosaminyltransferase

β -1,4-N-acetylgalactosaminyltransferase

β -1,4-galactosyltransferase

α -1,3-galactosyltransferase

α -1,4-galactosyltransferase

α -2,3-sialyltransferase

α -2,6-sialyltransferase

α -2,8-sialyltransferase

α -1,2-fucosyltransferase

α -1,3-fucosyltransferase

α -1,4-fucosyltransferase

Art Unit: 1652

β -1,3-N-acetylglucosaminyltransferase and β -1,4-galactosyltransferase

Applicant is required, in reply to this action, to elect a single species of oligosaccharide and corresponding exogenous precursor and recombinant gene(s) therefor and to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: there does not


Art Unit: 1652

appear to be any unifying technical feature to all of the claims beyond that they all relate to the production of oligosaccharides from an exogenous precursor using a recombinant microorganism including a gene for at least one glycosyltransferase. However, this does not constitute a special technical feature as defined by PCT Rule 13.2 as it is not a contribution over the art. Prieto et al. (WO 98/44145) teach oligosaccharide production by adding an acceptor moiety and host cells transformed with a polynucleotide that encodes a catalytic amount of a glycosyltransferase to purified sugar-nucleotides to form a mixture and incubating the mixture under conditions and for a period of time sufficient to allow for oligosaccharide formation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rebecca Prouty, Ph.D. whose telephone number is (571) 272-0937. The examiner can normally be reached on Monday-Friday from 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy, can be reached at (571) 272-0928. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.


REBECCA E. PROUTY
PRIMARY EXAMINER
GROUP 1800
1652